

Work Order ID 53413

November 4, 2009 7:38:27 AM

Page 1

Item ID: D206-667-103TRN

Accept

Setup Start

Revision ID: C

Stop

Item Name: Crosstube Turning DetailL

Start Date: 11/04/09 Start Qty: 1.00

Cust Item ID:

Required Date: 11/06/09 Req'd Qty: 1.00

Customer:

Reference:

Approvals:

Process Plan: *PL*

Date: *09-11-4*

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D206-667-143

Rev C

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-File tube with sand & install plugs DT8534 on both ends as per Folio
FA087 2-Turn first side as per Folio FA087 3-File down transition lines
smooth

110

0.00



QC1- Inspect dimensions to dimension sheet

QC

Memo

0.00

Quality Control

120

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA087 2-File down transition lines smooth.
3-Remove sand and plugs

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Page 2

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Customer:

Reference:

Run Start



Stop



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 QC Quality Control	QC1- Inspect dimensions to dimension sheet Memo	0.00 0.00	SA 02/11/11			1	0		
140 QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.00				1	-		AWM 9-11-12
150 HandFXtube Hand Finishing Crosstubes	Crosstubes Chemical Conversion Memo	0.00 0.00				1	-		AWM 9-11-12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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Page 3

Item ID: D206-667-103TRN

Accept



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Stop



Start Date: 11/04/09 Start Qty: 1.00



Cust Item ID:

Required Date: 11/06/09 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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160



QC

Quality Control

QC3- Inspect Part Finish

0.00

Memo

0.00

DP

9-11-12

170



Packaging

Packaging

Packaging

0.00

Memo

0.00

Identify and stock in kanban rack ☐ Location: X-TUBE CELL

1 - - 9-11-12

180



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

09/11/12

MF 09-11-12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

November 4, 2009 7:38:27 AM

Page 1

Work Order ID: 53413

Parent Item: D206-667-103TRNRevC

Parent Item Name: Crosstube Turning DetailL

Comments:

Start Date: 11/04/09

Required Date: 11/06/09

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D6002-115RevA		Manufactured	No			110	Each	64.0000	1.0000			

Crosstube Material

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

LG

64

34684

4

34776

60

0 51 02/11/11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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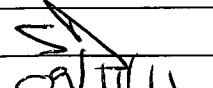
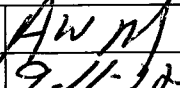
NOTE: Date & initial all entries

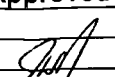
DART AEROSPACE LTD	Work Order:	53413
Description: Crosstube Assembly (206L High Fwd)	Part Number:	D206-667-143
Inspection Dwg: D206-667-143 Rev: B		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.242	/			
	1.982	+0.005/-0.000	1.987	/			
	2.019	+0.005/-0.000	2.023	/			
	2.058	+0.005/-0.000	2.063	/			
	2.097	+0.005/-0.000	2.102	/			
	2.136	+0.005/-0.000	2.141	/			
	2.176	+0.005/-0.000	2.181	/			
	2.201	+0.005/-0.000	2.205	/			
	0.125	+/-0.010	.135	/			
	0.400 x 30°	+/-0.010	.04 x 30°	/			
	R0.063	+/-0.010	R.063	/			
	R0.500	+/-0.010	R.500	/			
	4.438	+/-0.030	4.438	/			
SIDE B	104.98	+/-0.020	105.00	/			
	2.240	+0.005/-0.000	2.241	/			
	1.982	+0.005/-0.000	1.987	/			
	2.019	+0.005/-0.000	2.023	/			
	2.058	+0.005/-0.000	2.063	/			
	2.097	+0.005/-0.000	2.102	/			
	2.136	+0.005/-0.000	2.141	/			
	2.176	+0.005/-0.000	2.181	/			
	2.201	+0.005/-0.000	2.205	/			
	0.125	+/-0.010	.125	/			
	0.400 x 30°	+/-0.010	.04 x 30°	/			
	R0.063	+/-0.010	R.063	/			
	R0.500	+/-0.010	R.500	/			
	4.438	+/-0.030	4.438	/			

Measured by:		Audited by:		Prototype Approval:	N/A
Date:	07/11/11	Date:	9-11-12	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	04.05.06	New Issue (P/O D206-667-103)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM	

Item	Qty -143	Part Number	Description
1	X	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
2	1	D6002-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

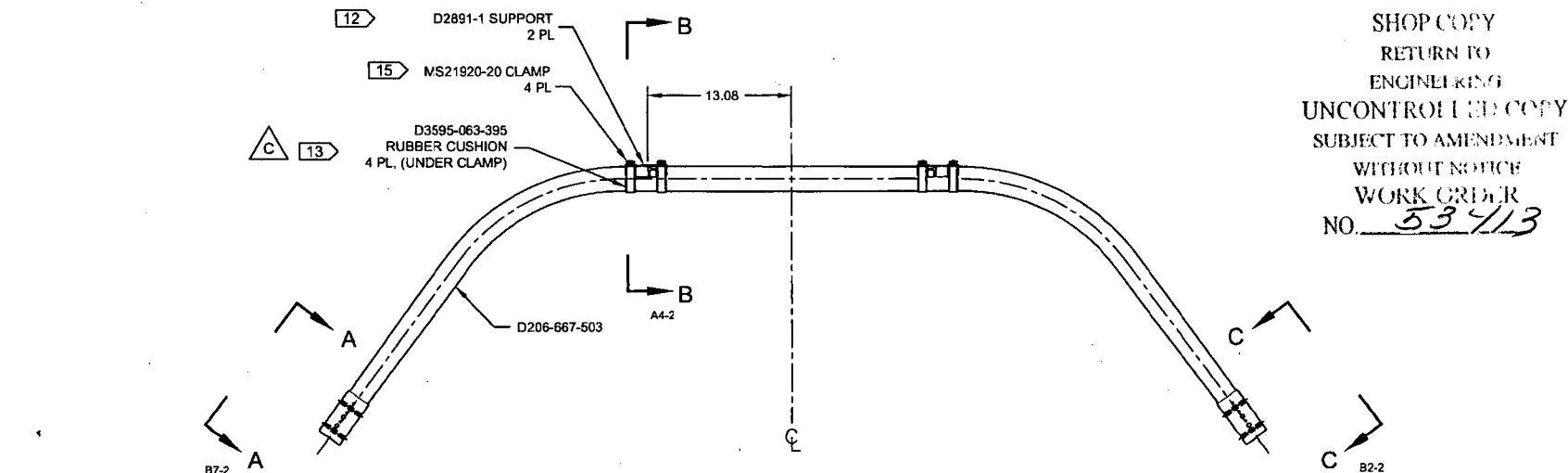
- 1) MATERIAL: MANUFACTURED FROM D6002-115
FINISHED LENGTH = 104.98±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-143" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 15.5 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

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NO. 53413
B109-11-4

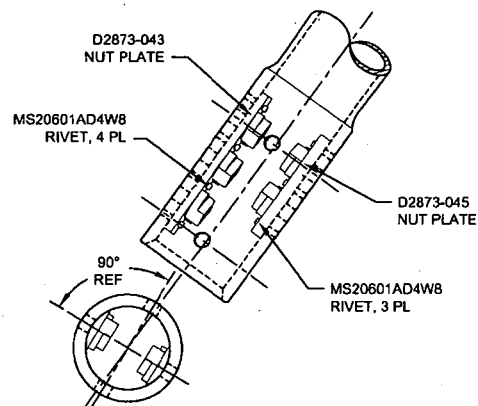
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08/11/06

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCE (ZN D3-3, C4-3, C5-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. C
CHECKED	RF	D206-667-143	SHEET 1 OF 4
MFG. APPR.	RF	TITLE	SCALE
APPROVED	RF	CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
DE APPR.	RF	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	08.11.06		

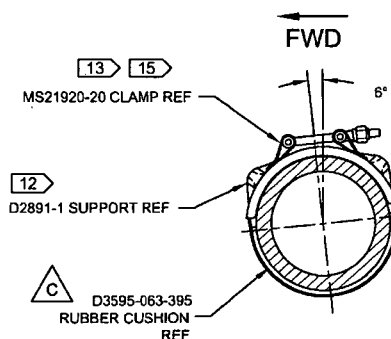
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NO. 53413



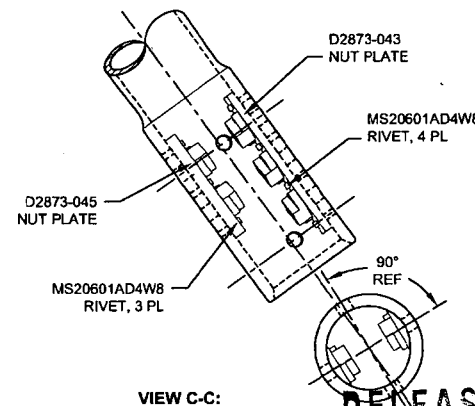
D206-667-143
ASSEMBLY DETAIL
(VIEW LOOKING FWD)



VIEW A-A:
CUFF DETAIL
SCALE 4X



SECTION B-B
SCALE 5X



VIEW C-C:
CUFF DETAIL
SCALE 4X

RELEASED
08/11/06

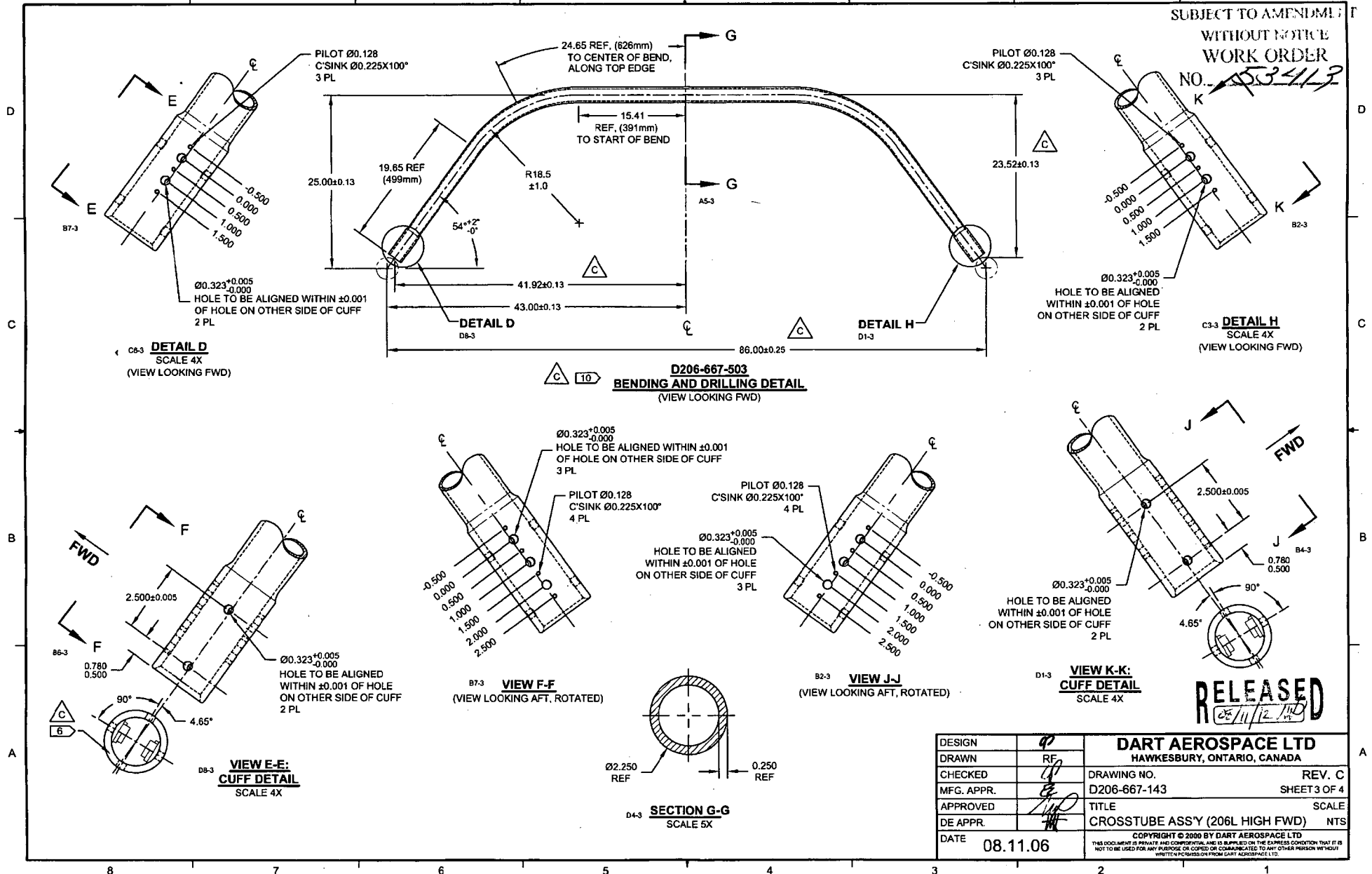
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DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	4	DRAWING NO.	REV. C
MFG. APPR.	4	D206-667-143	SHEET 2 OF 4
APPROVED	4	TITLE	SCALE
DE APPR.	4	CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD	
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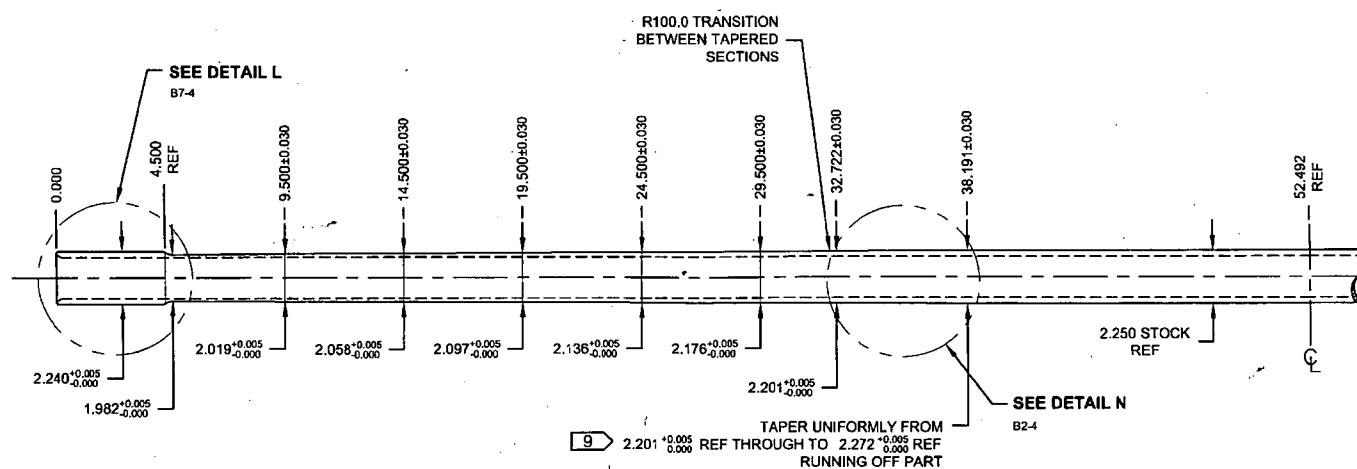
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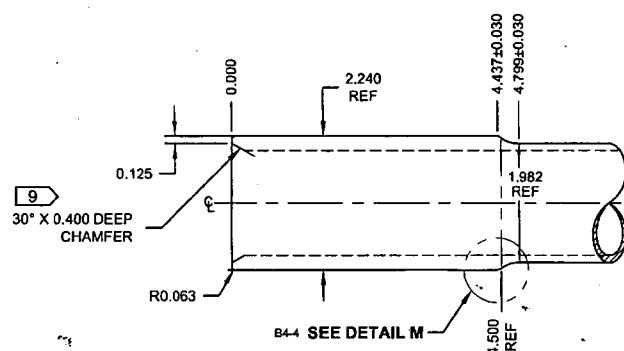
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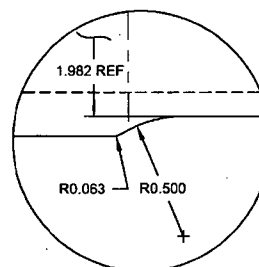
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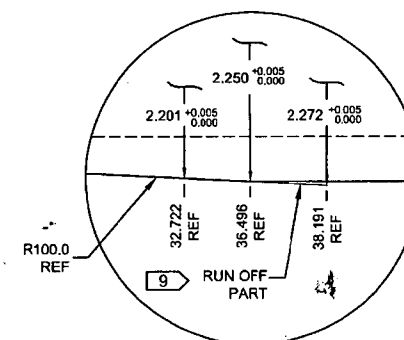
C TURNING DETAIL



**DETAIL L:
CROSSTUBE CUFF**
D7-4
NOT TO SCALE



**DETAIL M:
CUFF TRANSITION**
A6-4
NOT TO SCALE



**DETAIL N:
TAPER RUN-OFF**
C4-4
NOT TO SCALE

RELEASED
68/11/12

DESIGN	40	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	40	DRAWING NO. D206-667-143	REV. C
MFG. APPR.	40		SHEET 4 OF 4
APPROVED	40	TITLE	SCALE
DE APPR.	40	CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
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